



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|---------------------|------------------|
| 10/614,709 | 07/07/2003 | Shaoping Li | MICRON.198C1DV2 | 7923 |
| 20995 | 7590 | 04/15/2005 | EXAMINER | |
| KNOBBE MARTENS OLSON & BEAR LLP 2040 MAIN STREET FOURTEENTH FLOOR IRVINE, CA 92614 | | | AUDUONG, GENE NGHIA | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 2827 | |

DATE MAILED: 04/15/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

18 et

| | | | |
|------------------------------|------------------------|---------------------|--|
| Office Action Summary | Application No. | Applicant(s) | |
| | 10/614,709 | LI ET AL. | |
| | Examiner | Art Unit | |
| | Gene N. Auduong | 2827 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>See Office Action</u> . | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Information Disclosure Statement

1. The information disclosure statement (IDS) submitted on July 7, 2003, February 13, 2004 and March 16, 2004 is being considered by the examiner.

Claim Rejections - 35 USC § 102

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-14 are rejected under 35 U.S.C. 102(e) as being anticipated by Saito et al. (U.S. Pat. No. 6,590,803).

Regarding claim 1, Saito et al. disclose (method of fabricating) a Magnetic Random Access Memory (MRAM) comprising: forming an array of magneto-resistive bits (figure 1, MTJ cells 101, 102) such that the magneto-resistive bits are arranged in a plurality of rows (also see figures 14, 15, 16 and 18; MRAM cells are arranging in plurality of rows); forming a plurality of word lines (figures 14, 15, 16 and 18; word lines WL); forming a plurality of digital lines in a zig-zag pattern (figure 1, first write lines 11, 12 has a zig-zag shape; col. 8, lines 17-18) such that a digital line comprises vertical segments and horizontal segments, where a vertical segment of the digital line is substantially parallel to a corresponding word line (vertical segment of the write line 11, 12 is substantially parallel to write lines 21, 22), where a horizontal segment electrically connects adjacent vertical segments such that a digital line current common to the adjacent vertical segments flows in substantially opposite directions in the adjacent vertical segments (col. 7, lines 58+); and forming a plurality of sense lines (figure 14, 15, 16 and 18,

Art Unit: 2827

sense lines WL'), where a sense line electrically connects magneto-resistive bits of a row (see figures).

Regarding claim 2, Saito et al. disclose the method as defined in claim 1, wherein forming the plurality of word lines further comprises forming the word lines such that a word line is substantially parallel to another word line (see figures, all of the word lines are substantially parallel to each other).

Regarding claim 3, Saito et al. disclose the method as defined in claim 1, further comprising forming the array of magneto-resistive bits such that a major axis of a magneto-resistive bit is substantially perpendicular to a corresponding word line (major axis of the MTJ cells is in the horizontal direction, parallel to write lines 11, 12, substantially perpendicular to a corresponding word line WL (write lines 21, 22)).

Regarding claim 4, Saito et al. disclose the method as defined in claim 1, wherein forming the plurality of digital lines (first writes) further comprises forming the horizontal segments such that a major axis of a horizontal segment is substantially perpendicular to a major axis of a word line (major axis of horizontal segment of the first write lines 11, 12 is substantially perpendicular to a major axis of the second write lines 21, 22).

Regarding claims 5-10 and 11-14, the apparatus as previously discussed in claims 1-4 would be performed the method of operating as claimed. Therefore, they are analyzed as previously discussed with respect to apparatus claims 1-4.

Regarding claims 5-10 and 11-14, the method of operating the apparatus as claimed in claims 1-4.

Double Patenting

3. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

4. Claims 1-5 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-5 of U.S. Patent No. 6,424,564. Although the conflicting claims are not identical, they are not patentably distinct from each other because they are claiming the same scope of the invention; claiming the MRAM having its magneto-resistive bits are arranging in plurality of rows and having its digital lines forming in zig-zag pattern having vertical segments and horizontal segments.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gene N. Auduong whose telephone number is (571) 272-1773.

The examiner can normally be reached on 9-5-4, alternate second Monday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hoai Ho can be reached on (571) 272-1777. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2827

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

GA
April 3, 2005



Gene N Auduong
Primary Examiner
Art Unit 2827